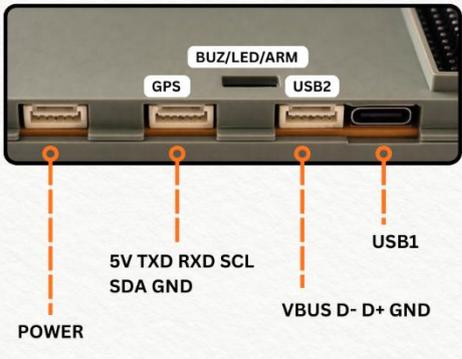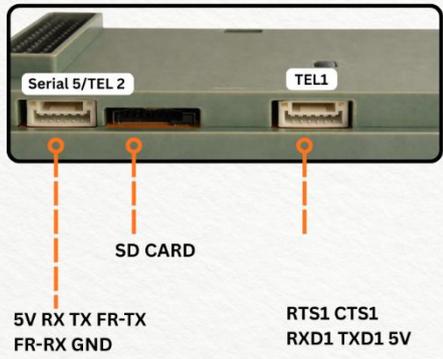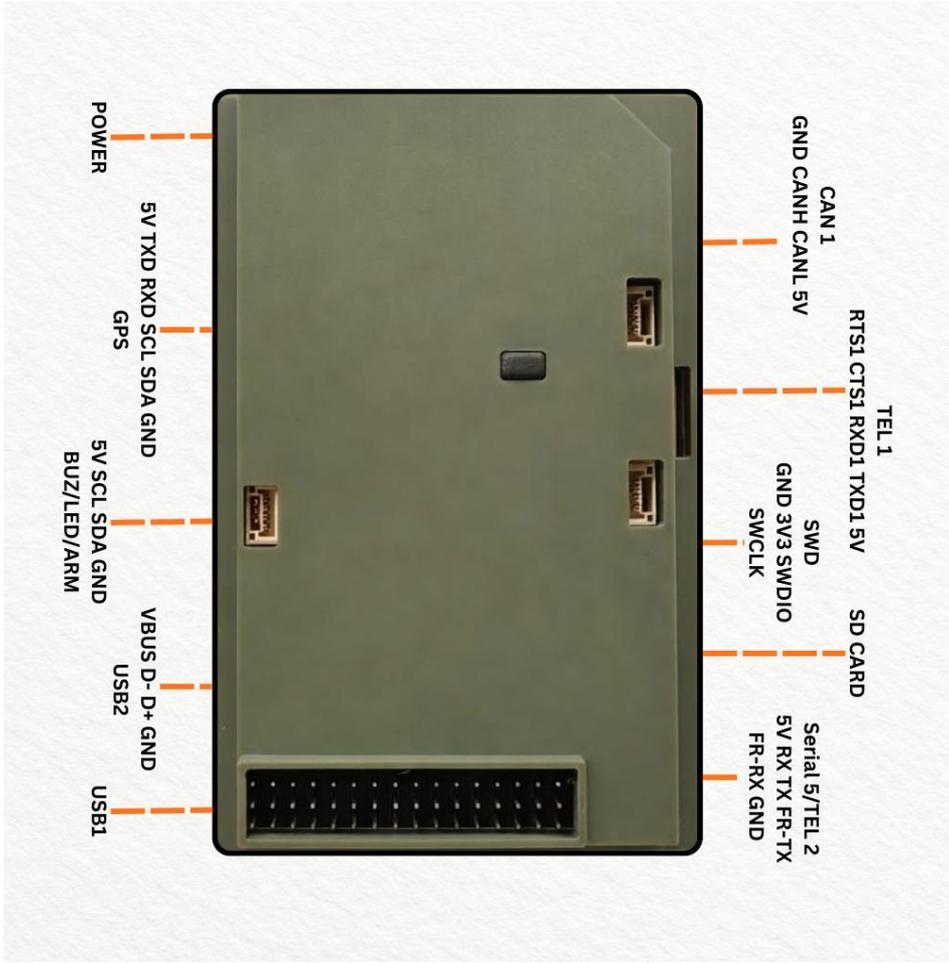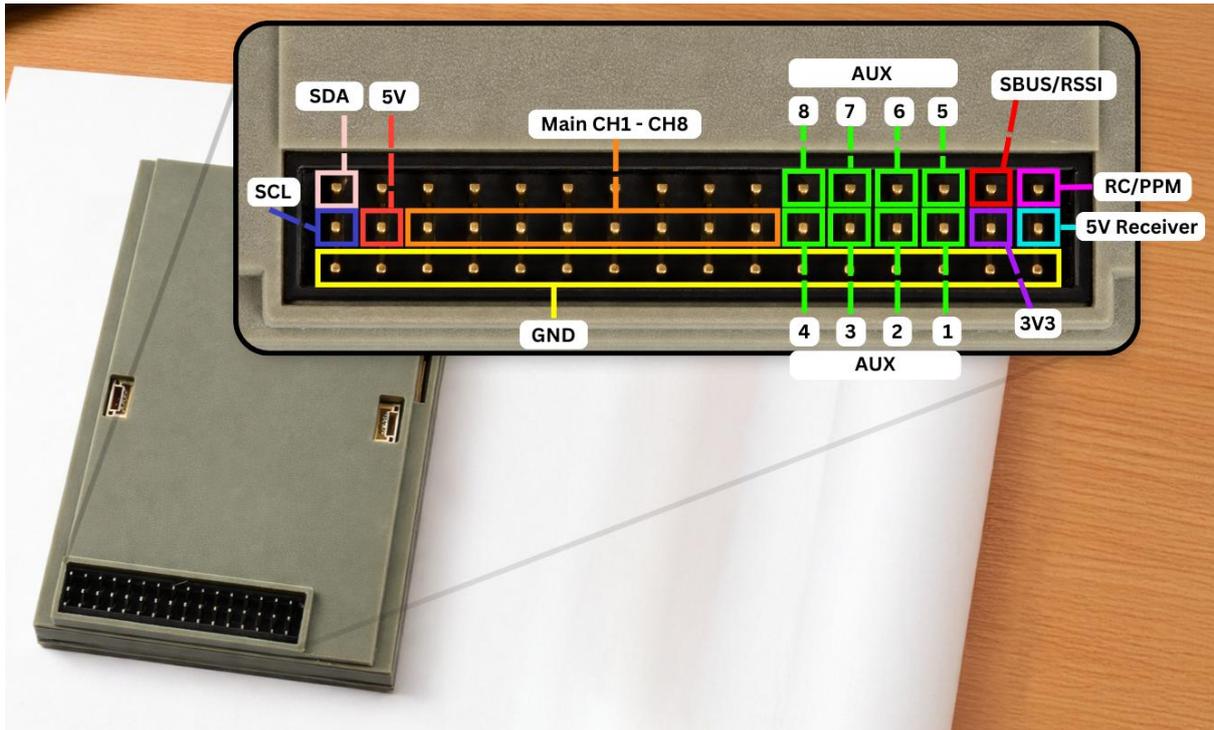# SaamPix-1.0-Manual

1. Install Ground Control Software (GCS)

2. Download and install Mission Planner (for ArduPilot) or QGroundControl on your computer.

3. Connect SaamPix to PC

4. Use a micro-USB cable to connect SaamPix 1.0 to your computer. The board will appear as a serial COM port.

5. Install Firmware

6. Using your selected GCS, flash the desired firmware such as ArduCopter, ArduPlane, or PX4 ( In progress)Multicopter.

7. Calibrate Sensors

8. Follow the guided setup to calibrate the accelerometers, gyroscope, magnetometer, barometer, and RC radio.

9. Connect Peripherals GPS & Compass: Connect via the dedicated GPS port

10. ESCs / Servos: Use the 8 main and 8 auxiliary PWM outputs

11. Telemetry & Data Links: Connect through TELEM1, TELEM2, or UART ports

12. Power Module: Use for stable voltage and current sensing

13. Additional Devices: Integrate LiDAR, cameras, or companion computers via I2C, CAN, or UART

14.

15. Configure Flight Modes & Safety

16. Select flight modes such as Stabilize, AltHold, Loiter, or Auto. Configure fail-safes and test the safety switch and buzzer.

17. Perform First Flight

18. Complete all pre-arm checks, ensure GPS lock and proper sensor status, then conduct the first flight in a safe, open area.

19. Final Check

20. Verify all connections and software settings before operational deployment.

POWER

CAN 1
GND CANH CANL 5V

5V TXD RXD SCL SDA GND
GPS

TEL 1
RTS1 CTS1 RXD1 TXD1 5V

5V SCL SDA GND
BUZ/LED/ARM

SWD
GND 3V3 SWDIO
SWCLK

SD CARD

VBUS D- D+ GND
USB2

Serial 5/TEL 2
5V RX TX FR-TX
FR-RX GND

USB1

Serial 5/TEL 2

TEL1

BUZ/LED/ARM

GPS

USB2

SD CARD

USB1

5V RX TX FR-TX
FR-RX GND

RTS1 CTS1
RXD1 TXD1 5V

POWER

5V TXD RXD SCL
SDA GND

VBUS D- D+ GND

CAN1

SWD

GND 3V3 SWDIO SWCLK

GND CANH CANL 5V

BUZ/LED/ARM

5V SCL SDA GND

# Specifications

**Main System-on-Chip: STM32F427**

**CPU: 32-bit ARM Cortex® M4 with FPU, running at 168 MHz**

**Memory: 256 KB SRAM and 2 MB Flash**

**IMU & Sensors:ICM-20602: 6-axis Motion Tracking (3-axis gyroscope + 3-axis accelerometer)**

**MPU9250: 9-axis sensor with gyro, accelerometer, and magnetometer (InvenSense®)**

**LIS3MDL: High-performance 3-axis magnetometer**

**MEAS MS5611: High-resolution barometric pressure sensor**

**PWM Outputs: 16 total (8 main + 8 auxiliary) for ESCs, servos, or custom actuators**

**Telemetry: Up to 3 serial telemetry/data links (MAVLink supported)**

**Expansion Ports: I2C, UART, and CAN for additional sensors and devices**

**Logging: microSD card slot for flight and sensor log storage**

**Safety & Indicators: Safety switch, buzzer, and LED indicators**

**Receiver Compatibility: PPM, SBUS, DSM, DSM2, DSMX**

**FrSky® Telemetry Support: Bi-directional telemetry over D and S.Port**